

Bellwork 4/30/13

Simplify the following expressions:

1) $\sqrt[3]{20x^4y^9z^2} \cdot \sqrt[3]{4x^3y^3z^7}$

$$\sqrt[3]{80x^7y^{12}z^9}$$

$$2^2 x^2 y^4 z^3 \sqrt[3]{10x}$$

2) $\sqrt{72} + 4\sqrt{8} - 3\sqrt{27} - 4\sqrt{50}$

$$\begin{matrix} \hat{3} & \hat{4} & \hat{9} & \hat{25} \\ 36 & 42 & 93 & 252 \\ \downarrow & \downarrow & \downarrow & \downarrow \\ 6 & 22 & 33 & 55 \end{matrix}$$

$$6\sqrt{2} + 8\sqrt{2} - 9\sqrt{3} - 20\sqrt{2}$$

$$-6\sqrt{2} - 9\sqrt{3}$$

$$\sqrt{3} \cdot \sqrt[3]{27}$$

$$\sqrt{3}$$

$$\begin{matrix} \hat{9} \\ 3 \\ \downarrow \\ 33 \end{matrix}$$

$$\sqrt{3} \cdot 3 = 3\sqrt{3}$$

$$\begin{matrix} 3\sqrt{2} \cdot 5\sqrt{2} \\ 15\sqrt{4} = 30 \end{matrix}$$

$$\sqrt{18} \cdot \sqrt{50}$$

$$\sqrt{900}$$

$$\begin{matrix} \hat{9} & \hat{100} \\ 33 & 1010 \\ \downarrow & \downarrow \end{matrix}$$

$$30$$

23)

$$\sqrt[3]{-9x^2y^4} \cdot \sqrt[3]{12xy}$$

$$\sqrt[3]{-108x^3y^5}$$

$$\boxed{-3xy \sqrt[3]{4y^2}}$$

$$\begin{array}{c} 108 \\ \wedge \\ 9 \quad 12 \\ \wedge \quad \wedge \\ \boxed{33} \quad \boxed{34} \end{array}$$

Quotient Property of Radicals

$$\frac{\sqrt[n]{a}}{\sqrt[n]{b}} = \sqrt[n]{\frac{a}{b}} \quad (b \neq 0)$$

Example 2: Divide then simplify each radical expression.

$$d.) \frac{8\sqrt{54x^5}}{4\sqrt{3x^3}} = 2\sqrt{18x^2} = 6x\sqrt{2}$$

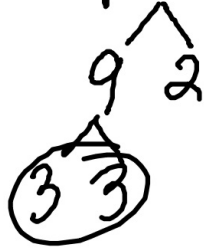
$$\begin{array}{c} 9 \quad 2 \\ \wedge \quad \wedge \\ \boxed{33} \end{array} \quad \boxed{6x\sqrt{2}}$$

$$e.) \frac{9\sqrt[3]{48x^8}}{1\sqrt[3]{2x^3}} = 9\sqrt[3]{24x^5} \rightarrow \text{need } 3!$$



$$18x \sqrt[3]{3x^2}$$

$$f.) \frac{\sqrt{54x^3y^3}}{\sqrt{3xy^2}} = \sqrt{18x^2y}$$



$$3x\sqrt{2y}$$

$$(30) \frac{\sqrt[4]{243k^3}}{\sqrt[4]{3k^7}} = \sqrt[4]{\frac{243k^3}{3k^7}}$$

$$= \sqrt[4]{\frac{81}{k^4}}$$

$$\frac{3}{k}$$



Homework:

pg 17 # 25-33
(skip 31+32)

